34.1 General Discussion

The Highways and Local Programs Service Center of the Washington State Department of Transportation (WSDOT) and local agencies have developed a bridge replacement selection process for selecting and prioritizing bridges to be replaced using Federal Bridge Replacement (BR) Funds.

Section 34.2 of this chapter describes the roles, purpose, and membership of the committees and organizations integral to that process: the Bridge Replacement Advisory Committee (BRAC), the BRAC Technical Committee, and the WSDOT Bridge Preservation Section. Section 34.3 describes the funding eligibility and criteria for design, local match, and approach costs. Section 34.4 describes each step in the bridge replacement selection process. Section 34.5 outlines alternative procedures for defining the scope of bridge projects.

34.2 Bridge Replacement Advisory Committees

The primary committee specifically set up to facilitate selection of local agency bridges for replacement or rehabilitation is BRAC. The BRAC Technical Committee is a BRAC subcommittee, consisting of three members appointed by the Highways and Local Programs Assistant Secretary. WSDOT works extensively with these two Committees in the selection process. The role, purpose, and membership of these committees is outlined here:

.21 The Bridge Replacement Advisory Committee. BRAC reviews local agency bridge replacement candidates ranked by sufficiency rating, and recommends candidates for funding. BRAC usually meets twice a year (Spring and Fall). It consists of nine voting members: three state engineers, one each from WSDOT's Highways and Local Programs, Bridge and Structures, and Program Development divisions; three county members are appointed by the Washington State Association of County Engineers; and, three city members are appointed by the Association of Washington Cities. Each city and county member initially serves one year as a non-voting alternate, then serves in a voting capacity for a full, three-year term. One new city and county member is recommended for appointment each year. In the absense of a voting member, the non-voting member assumes their duties.

.22 The BRAC Technical Committee. This Committee reviews all bridge replacement candidates and reconciles any differences between the bridge sufficiency rating as originally calculated by the owner agency and the independent rating calculated by the Bridge Preservation Section. The bridges are then ranked by the revised sufficiency rating. When their review is complete, the Technical Committee recommends a bridge's appropriateness for replacement (good, fair, or poor), to BRAC. The Technical Committee consists of three engineers: one each from a city, a county, and the state; all must be engineers with extensive bridge condition inspection and maintenance experience. The Highways and Local Programs Bridge Engineer for Local Agencies also provides input and answers questions for the technical committee.

.23 The WSDOT Bridge Preservation Section. For the fall meeting, bridges with sufficiency ratings qualifying them as candidates for replacement are evaluated by a team from the Bridge Preservation Section, a section within the WSDOT Bridge and Structures Office. The team performs a field inspection the first year a bridge is eligible for consideration, then reinspects it at least once every three years thereafter until it is either:

- funded for replacement,
- a decision is made not to fund it,
- falls out of eligibility.

34.3 Bridge Funding

The BR Funds provides federal funds to cities and counties to replace or rehabilitate bridges that are physically deteriorated and are structurally deficient or functionally obsolete. Other BR funded programs include Seismic Retrofit, Painting, Scour Mitigation and Rehabilitation (see Appendix 34.61A and B).

.31 Typical Bridge Replacement Criteria. BRAC recommends funding a bridge for replacerment based on the "Typical Bridge Criteria." If an agency requests funding of items that are beyond the scope of a typical bridge, they will be required to submit documentation supporting their requests. These requests will be approved or denied on a case-by-case basis by Highways and Local Programs. All requests must be based on sound engineering judgment and/or economics.

a. Design Year: The bridge construction year is to be 20 years from the start date of construction.

b. Design Loading: HS25-44 or equivalent.

c. Vertical Clearances: Clearance over roadways is to be 5 m (16.5 feet). Clearance over railroads is to be 7.2 m (23.5 feet).

d. Bridge Width: The bridge curb-to-curb width is to be determined using the *Local Agency Guidelines* manual (LAG), Chapter 42, Design Standards. The ADT is to be based on a 20-year traffic study.

e. Bridge Length: The length of the replacement bridge can be affected by one or both of the following factors.

1. The bottom of the superstructure will be .9 m (3 feet) above the 100-year flood.

2. The abutment and pier location(s) of a new bridge generally reduces the existing backwater elevation. In fish bearing waters, acceptable rise in the backwater elevation is .06 m (0.2 foot) above current conditions, as referenced in WAC 220-110-070 (1) (h). For non-fish bearing waters, the acceptable rise in the backwater elevation is .3 m (1 foot) above current conditions.

f. Bridge Type: The bridge type selected will be the most economical type for the span length needed, based on sound engineering judgment and/or economics. Consideration will be given to reducing the number of piers in the stream bed provided it does not substantially increase the cost of the structure.

g. Bridge Foundation Type: The type and depth of the foundation elements will depend on the results of the geotechnical and scour analysis.

h. Approach Roadway Cost: BR funds can be applied to the bridge approachment subjected to the limitation in 34.32.

i. Bridge Aesthetics: The aesthetic aspects of the bridge will be reviewed on a case-by-case basis by Highways and Local Programs. The cost of aesthetics treatment will be compared to what is the standard practice statewide. BRAC funds will normally provide only the aesthetic treatment required in the approved NEPA documents. Typically, paints or pigmented sealers and fractured fin finishes on concrete structures will not be approved.

.32 Bridge Approach Costs. Local agencies have a 15 percent limit on approach costs for participation in the federal bridge program. WSDOT Headquarters Highways and Local Programs may authorize additional participation, provided there are unusual conditions that warrant additional funding and the agency submits a request with detailed cost estimates, layout, profiles, and other data to support the request.

The following bridge items are considered to be a bridge cost when determining the bridge and approach work percentages.

a. Bridge Construction — all items typically detailed by bridge designers (concrete, re-bar, piling, barriers, expansion dams, etc.).

b. Demolition of existing structures.

c. Detour — all work items required to accommodate the construction of the new bridge. Traffic control for work zone — prorated by cost of bridge and approach work.

d. Structural Excavation and Backfill for Bridge — includes abutments, wingwalls, footings, cofferdams, etc.

e. Mobilization — prorated by cost of bridge and approach work.

f. Riprap Protecting Bridge Structure Within the Right-of-Way — riprap placed within the right-of-way to protect the structure can be considered a bridge item.

g. Approach Slab — the approach slab is a reinforced concrete element which protects the bridge end abutments from impacts and can be considered a bridge item.

h. Approach Guardrail Transition Section — the approach guardrail is designed to perform as a structural unit to protect traffic from the bridge ends. Approach guardrail systems are installed in accordance with Standard Plans and are considered a bridge item provided site conditions do not require unusually long transitions.

i. Retaining Walls (up to 6.1 m (20 feet) maximum distance from the abutment) — retaining walls are structural elements that serve the same function as the standard bridge wing walls and are designed by bridge designers. Retaining walls beyond these limits would be considered approach work.

j. Bridge Drainage — this includes the drainage components necessary to carry water from the structure.

All other work items will be classified as approach or miscellaneous work, and thus are subject to the 15 percent limit, unless approved by Highways and Local Programs during the C3R process (Section 34.5 Bridge Scoping).

.33 Match Requirements. The required match for bridge funds is federally stipulated at 80 percent federal and 20 percent local. However, BRAC has adopted a more conservative match requirement in order to fund more projects.

Bridges estimated over $10 million will require a funding proposal from the agency. This proposal must address the financing, available match, and the proposed timing of fund expenditures. These projects are generally phase obligated.

.34 Cost Containment Policy. The following are the policies established by BRAC for the purpose of managing the bridge funds. See the Highways and Local Programs website for latest changes to the cost containment policy.

a. Cost Containment for Projects Selected Prior to 1998

Bridge replacement funds are to be used to replace bridges based on the definition of a typical statewide bridge.

If an agency requests funding of items that are beyond the scope of a typical bridge, they will be required to justify their request. These requests will be reviewed on a case by case basis by Highways and Local Programs. All requests must be based on sound engineering judgment and/or economics. Agencies may be required to provide a higher participation in costs when the scope is beyond the typical bridge.

Bridge approach costs will be limited to 15 percent of the cost relating to construction of the bridge as referenced in Section 34.32.

Additional approach roadway funding may be requested if adequate justification exists. All requests must be based on sound engineering judgment and/or economics. A case-by-case allowance may be made to exceed 15 percent based on justification and may require a cost sharing with the local agency.

Highways and Local Programs will review the bridge construction schedule and meet with the agencies to ensure adequate progress is being made. Highways and Local Programs staff will report to BRAC as necessary or requested.

Match Requirements

Incremental Project Cost	Federal	Local
0-10 million	80%	20%
Over 10 million	50%	50%

b. Cost Containment for Projects Selected After 1997

The agency cost estimates will be used for the purpose of BRAC selections. This information will be collected on the cost estimate work sheet, and checked for reasonableness against historical data for the particular region. Any discrepancies will be reconciled with the agency.

Bridge replacement funds are to be used to replace bridges based on the definition of a typical statewide bridge.

If an agency requests funding of items that are beyond the scope of a typical bridge, they will be required to justify their request. These requests will be reviewed on a case by case basis by Highways and Local Programs. All requests must be based on sound engineering judgment and/or economics. Agencies may be required to provide a higher participation in costs when the scope is beyond the typical bridge.

Bridge approach costs will be limited to 15 percent of the cost relating to construction of the bridge as referenced in Section 34.32.

Additional approach roadway funding may be requested if adequate justification exists. All requests must to be based on sound engineering judgment and/or economics. A case by case allowance may be made to exceed 15 percent based on justification and may require a cost sharing with the local agency.

Match Requirements

Incremental Project Cost	Federal	Local
0-5 million	80%	20%
Over 5 million to 10 million	65%	35%
Over 10 million	50%	50%

34.4 Bridge Selection

.41 Procedures. Following are the steps involved in selecting bridges for replacement.

a. Bridge Sufficiency Ratings. The Federal Highway Administration (FHWA) calculates sufficiency ratings for every bridge in the nation. This rating is computer-calculated and is based on inventory and inspection data submitted by state and local agency bridge inspectors. The sufficiency rating formula is based on four factors: structural adequacy and safety, service-ability and functional obsolescence, essentiality for public use, and special reductions. Ratings can range from 0 (worst) to 100 (best).

b. Funding Allocations. The FHWA annually allocates need-based federal BR funds to each state. In Washington, currently 40 percent of the funds allocated to the state are reserved for local agency bridge replacement and rehabilitation projects. Current federal requirements state that 15 to 35 percent of a state's allocation be spent off the federal aid system. WSDOT has virtually no off-system bridges; thus, those percentages for off-system bridges are comprised totally of local agency bridges. Annually, Highways and Local Programs requests reduction of this percentage to 5 percent which is equal to number of system bridges.

c. Funding Eligibility. A structurally deficient or functionally obsolete bridge with a sufficiency rating less than 50 is eligible for federal replacement funding. A structurally deficient or functionally obsolete bridge with a sufficiency rating of 80 or less is eligible for federal rehabilitation funding.

Chapter 5 of the *Washington State Bridge Inspection Manual* further explains sufficiency ratings and outlines criteria for structural deficiency and functional obsolescence.

d. Bridge Replacement Candidates. The WSDOT Highways and Local Programs Bridge Engineer for local agencies, in conjunction with WSDOT Bridge Preservation Section engineers, develops a list of bridge replacement candidates, for the fall BRAC meeting starting with bridges having the lowest sufficiency ratings, followed by candidates with higher ratings.

e. Local Agency Notification. Local agencies are notified through the WSDOT Highways and Local Programs Service Center that their bridge is being considered for replacement funding. The local agency is asked to provide input regarding its ability to provide matching funds, the appropriate scope of work (see Section 34.31), estimated project cost using the BRAC Bridge Replacement worksheet (Appendix 34.62), and other details.

f. Field Evaluation of Bridges. The WSDOT Bridge Preservation Section evaluates bridges in the replacement list and calculates independent sufficiency ratings. This is done to normalize any differences which might occur. The Bridge Preservation BRAC Inspection Team evaluates the fall replacement candidates.

g. BRAC Technical Committee Review. The BRAC Technical Committee reviews each bridge under consideration as a suitable candidate for funding and, when necessary, reconciles any major differences between sufficiency ratings that are based on local agency inspector's coding and the Bridge Preservation Section. This committee also looks for inconsistencies between condition codes, load ratings, postings, and other factors. The Committee recommends a bridge as a good, fair, or poor candidate for replacement based on load capacity, bridge geometrics, approach geometrics, bridge condition, and steam hydraulics.

h. BRAC Committee Selection Process. Bridge candidates are presented to BRAC ranked by their sufficiency rating. BRAC Technical Committee recommendations, including information from the local agency and WSDOT, are reviewed by BRAC. The Committee discusses the merits of each candidate and bridges are recommended for funding until the estimated replacement cost of the candidates equals available funding.

   For each bridge presented, the Committee then recommends to the Assistant Secretary for Highways and Local Programs a list of bridges to be funded for replacement or rehabilitation based on the results of a C3R Review.

   Bridges which are not selected for replacement funding fall into two categories: (1) Viable replacement candidates which BRAC has not selected for funding during the current year; the agency may resubmit these bridges for funding consideration for a subsequent meeting. (2) Bridges which are not appropriate replacement candidates for BR funding.

i. Selection of Bridge Replacement Candidates. After BRAC recommendation and the C3R Review is performed, the Assistant Secretary for Highways and Local Programs selects the bridge to receive BR funding. Local agencies are notified, by letter, that their bridge was chosen, and are asked to submit their request for funding approval through their Regional Highways and Local Programs Engineer.

34.5 Bridge Scoping

.51 The C3R Review — Definition/Purpose. The C3R Review is a process which provides a means for reviewing four possible solutions to a deficient bridge problem: closure, repair, rehabilitation, or replacement (C3R). The C3R process is intended to find the most cost effective scope of work and to identify any deviations from the standards that are warranted under the circumstances.

a. The C3R Review Team. This team consists of a bridge owner representative who has the authority to commit to any design deviations; the Highways and Local Programs team leader is the Highways and Local Programs Operations or Bridge Engineer; the Regional Highways and Local Programs Engineer; FHWA Bridge Engineer; Local Agency Representatives; and any others as appropriate. Team members conduct on-site reviews of structures recommended for a C3R Review.

b. Review Procedures. The steps involved in a C3R Review are:

   1. BRAC's policy requires a C3R on each project unless specific conditions dictate otherwise.

   2. Field Review at the Bridge Site. At the site review, the C3R team reviews the site in detail and considers the four possible review options. The team member representing the bridge owner provides the local agency's recommendations for correcting deficiencies and has the authority to prepare geometric design deviations. The Highways and Local Programs team leader has authority to recommed design deviation approval as discussed by the team during the field review for approval by the Highways and Local Programs Assistant Secretary. Any appropriate alternative solutions are also considered.

      The project cost estimate previously submitted by the agency is discussed in detail and specific elements of work are identified with appropriate estimates of cost. These elements include right-of-way, need for a detour during construction, environmental considerations, approach cost, and others.

A consensus is reached on the appropriate scope of the work and cost estimate, Highways and Local Programs confirms, by letter to the local agency, the results of the C3R review. The C3R Field Review Report and C3R Bridge Replacement Cost worksheet are completed and signed at the bridge site.

In addition to the options available within the C3R process, the team may also recommend a Value Engineering (VE) study, a city or county design report (if appropriate) or a Type, Size, and Location (TS&L) Study and report. The Highways and Local Programs Bridge Engineer provides guidance and direction for completion of these reports and studies. Bridge replacement funds are authorized for use in preparing a requested report or study. (See Chapter 2.1.5 of the WSDOT *Bridge Design Manual* for a sample TS&L.)

3. The Design Report. A local agency may be asked to prepare a detailed Design Report if an appropriate course of action cannot be determined by the C3R team, or if more information about the appropriate scope of work is required. Information to be included in the report will be defined, in writing, by the C3R team. Bridge replacement funds are authorized for use in preparing a requested report.

4. Final Review of Design Report and Project Scoping. The completed Design Report is received and reviewed by the Highways and Local Programs Bridge Engineer. If any additional information is needed, the Highways and Local Programs Bridge Engineer will request it. When the review is concluded and a decision reached, Highways and Local Programs will write to the local agency confirming the decision, and if appropriate, authorize design work to begin.

.52 Type, Size, and Location Study for Major Structures. For bridge replacement projects estimated to cost $5 million or more, or for replacement with a "unique" site condition, the FHWA may require a local agency to conduct a TS&L Study. Factors constituting a "unique" site condition are defined by the FHWA as:

- difficult or unique foundation problems,
- new foundation types,
- new or complex designs involving unique design or operational features,
- longer than normal spans,
- bridges for which the design procedures depart from current acceptable practice.

If the proper scope of the project cannot be determined by a field C3R review, or if the replacement bridge will be built at a location outside the existing row, the C3R team may require a TS&L Study before determining the proper scope of the project.

Items to be discussed in the TS&L studies are outlined in Chapter 2 of the WSDOT *Bridge Design Manual.*

.53 Value Engineering Study. C3R Review findings may lead to a recommendation for a value engineering study. A VE study may be requested at any time during the design phase, if appropriate.

34.6 Appendixes

19:P65:DP/LAG3

Washington State Department of Transportation

H & LP Service Center

C3R Field Review Report

Date

Structure Ident.:
Agency:
Bridge Name:
Bridge Number:
Features Intersected:
Features Carried:
ADT: Year:
Year Built: Detour:

Existing Bridge Characteristics

Structure Type: ☐☐
Number of Spans:
Total Length:
Max Span Length:
Curb - Curb Width:
Alignment ☐

Present at Field Review

HQ Highways & Local Programs
- ☐ Larry Schofield
- ☐ Greg Kolle

Region Highways & Local Programs
Agency

C3R Consensus for New Bridge

Structure Type: ☐☐
Number of Spans:
Total Length:
Max Span Length:
Curb - Curb Width:
Alignment ☐

Cost

Bridge:
Total Project:

Field Review Decisions and Comments:

Approved By: ☐ _____ Date: _____
Highways & Local Programs Operations Engineer

Agreed To: _____
Authorized Local Agency Representative

Office Review Comments:

Criteria for Bridge Candidates

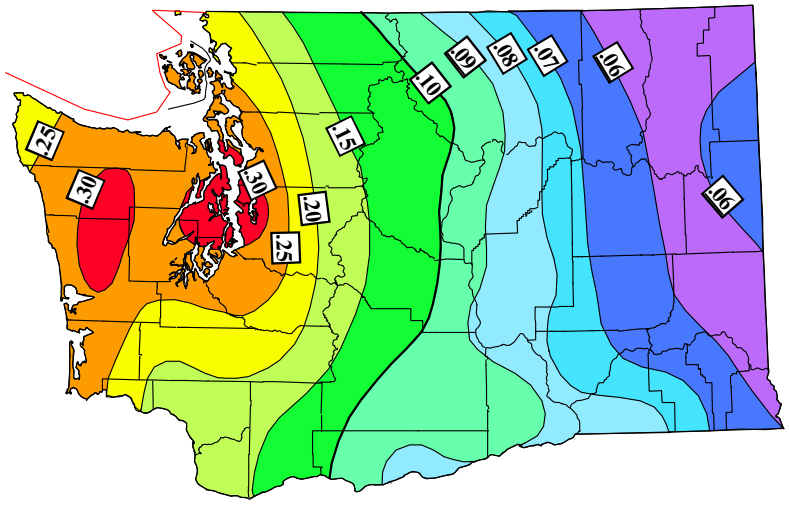
December 29,1999

Grant applications for the Spring and Fall meetings will be due as stated in announcement letters. There are Federal Bridge funds available for Seismic Retrofit, Scour Mitigation, Painting, Rehabilitation, and Replacement. Use the*BRAC BRIDGE FUNDING QUESTIONNAIRE* application for Seismic Retrofit, Scour Mitigation, Painting, and Rehabilitation bridge candidates and send to GregKolle. For the Fall meeting, bridge replacement candidates will be selected from the WSBIS database and candidates are presented by Bridge Preservation.

Be sure to follow the eligibility criteria for your candidate. Eligibility is as follows:

- Bridge length and NBIS length must be 20 feet or greater as measured along centerline of roadway.
- Must be a bridge that carries public vehicle four-wheel traffic.
- For rehabilitation the Sufficiency Rating (SR) must be 80 or less.
- Rehabilitation costs shall not exceed 70% of estimated replacement costs.
- For replacement the SR must be less than 50.
- For painting or scour mitigation the SR must be 80 or less.
- All candidates must be structurally deficient (SD) or functionally obsolete (FO), except for seismic.
- For rehabilitation, seismic, and painting it shall be 15 years before the bridge is eligible for further Federal Bridge funds.
- Seismic retrofits will be on superstructure in-span hinges and joints at piers in Seismic Zones with acceleration coefficients greater then .10. The SR and SD or FO does not restrict use of Federal Bridge funds on seismic retrofits.

Seismic Acceleration Zones



If you have questions regarding BRAC issues, please call the Highways and Local Programs Bridge Engineer at (360) 705-7379.

BRIDGE REHABILITATION CRITERIA

December 29, 1999

TO QUALIFY FOR REHABILITATION/PAINTING/SCOUR MITIGATION

1. Sufficiency rating will be 80 or less and be structurally deficient (SD) or functionally obsolete (FO).
2. Total rehabilitation costs (including seismic) shall not exceed 70% of the replacement costs.

AFTER REHABILITATION

1. Structural deficiencies will be removed.
2. Design Standards deviations to correct functional obsolescence are rarely granted, however, they will be considered on a case by case basis.
3. If a deviation is being requested, cost estimates will be based on the assumption of approval.
4. Deviations for seismic requirements will be considered on a case by case bases.
5. Completed bridge must load rate at or above an H-15 inventory rating.
6. Structure will not be eligible for replacement, rehabilitation or seismic retrofit funding for 15 years (Does not include Scour Mitigation).

SELECTION PROCESS

1. Bridges that are structurally deficient will be funded before bridges that are functionally obsolete. All candidates will be assigned a Priority Ranking and will be presented in Priority Ranking ascending order.
2. Priority Ranking: (S1 plus S3)*(Deficiency Code where SD =1 & FO=2).

FUNDING LEVELS

1. Seismic retrofit costs will be funded at a 50% match.
2. All other rehabilitation costs will be funded at an 80% match.

BRAC
BRIDGE FUNDING QUESTIONNAIRE
May 28, 1999

Agency Name:	***Pick one of the following:***
Bridge Name:	**Replacement Candidate: (Y/N)**
Bridge Number:	**Rehabilitation Candidate: (Y/N)**
Contact Person:	**Scour Candidate: (Y/N)**
Phone:	**Seismic Candidate: (Y/N)**
Date:	**Painting Candidate: (Y/N)**
Structure ID:	**Sufficiency Rating: _____ (SD/FO)**

Does your Agency want this bridge to be considered for Federal Funding this year?
YES ___ NO ___
If NO, what year would you like it considered?_____
Does this bridge site fall under a Sensitive Area Ordinance? (Y/N) _____
What would be the consequences of permanently closing this bridge?_____
_____
_____

Total Project Description:
Note: If this is a Rehabilitation Candidate give the estimated cost to replace the structure as well as the total cost to rehabilitate the structure.
Will you be requesting a deviation for functionality (FO)? (Y/N) _____
Project will include: _____
_____
_____

Replacement Bridge Types:

New Superstructure Type	
New Substructure Type	
Proposed Length	
Proposed Curb to Curb	

Rehabilitation/Replacement Projects:

PE Costs:	**ROW Costs:**	**Construction Costs:**	**Approach Costs:**
All Other Costs:	**Total Costs**	**If a Rehab. What is the Replacement Cost?**	

Other Projects:

Scour Total Costs	**Seismic Total Costs**	**Paint Total Costs***

***Realistic* Start Dates (Month, Year):**

Preliminary Engineering	**Right of Way Purchases**	**Construction**

Please send copies of the last inventory and inspection reports, load ratings, accident data, any other pertinent information, and electronic photos (640 x 480 pixels minimum .jpg) with this questionnaire by the due date specified in the cover letter. *A Paint Inspection DOT Form 234-028 EF must be filled for funding consideration.

BRIDGE REHABILITATION /REPLACEMENT WORKSHEET

Length: _____ x Width (Curb to Curb) _____ = _____SF

Preliminary Engineering:

Preliminary Engineering (* 10%) (____ %) _____

Right of Way:

Right of Way: Relocation _____
Acquisition _____

Construction:

Construction: Superstructure _____(1)
Substructure _____(2)

Approach Costs (Maximum 15%)

Approach Cost [(Sum((1) through (5)) x ____%] _____

All Other Costs:

Environmental Permit Requirements _____
Describe: _____
_____

Detour: Bridge _____(3)
Other _____(4)

Construction Engineering (* 15%) (____ %) _____

Contingency (* 15%) (____ %) _____

Mobilization (* 10%) (____ %) _____(5)

Inflation Factor (____%) _____

Other (Describe): _____ _____
_____
_____

Total Rehabilitation or Replacement Project Costs:

Project Total** _____

If a Rehabilitation, what is the Replacement Cost?

Estimated Bridge Replacement Cost Total** _____

- *Default Values
- **If Total Cost/Deck Area exceeds $250 / sqft, explain why.

Page 2

(***Note:*** Unit bridge costs include mobilization but do not include engineering or contingency.)

		Low	Average	High
Prestressed Concrete Girders				
Span 50 - 140 feet				
Water Crossing w/piling	SF	$55.00	$80.00	$100.00
Water Crossing w/spread footings	SF	50.00	70.00	90.00
Dry Crossing w/piling	SF	70.00	80.00	90.00
Dry Crossing w/spread footings	SF	45.00	60.00	80.00
Reinforced Concrete and				
Post-tensioned Concrete Box				
Girder-span 50 - 200 feet				
Water Crossing w/piling	SF	70.00	95.00	120.00
Water Crossing w/spread footings	SF	70.00	90.00	110.00
Dry Crossing w/piling	SF	70.00	90.00	110.00
Dry Crossing w/spread footings	SF	60.00	80.00	100.00
Reinforced Concrete Flat Slab Span 20 - 60 feet	SF	35.00	50.00	75.00
Prestressed Concrete Slabs Span 13 - 69 feet	SF	45.00	68.00	90.00
Prestressed Concrete Decked Bulb-tee Girder				
Span 40 - 115 feet	SF	70.00	85.00	110.00
Steel Girder-span 60 - 400 feet	SF	100.00	120.00	150.00
Steel Truss-span 300 - 700 feet	SF		*135.00	
Steel Arch-span 30 - 400 feet	SF		*145.00	
Concrete Bridge Removal	SF	5.00	15.00	30.00

*Based on limited cost data.

Bridge areas are computed as follows:

Typical Bridges: Width x Length

Width: Total width of deck, including the portion under the traffic barrier

Length: Distance between back of pavement seats, or for a bridge having wingwalls (typically end of wingwall to end of wingwall)

General Definitions for:

Low: Projects with normal details, Larger projects, Normal project location Normal project accessibility

Average: Projects with normal/usual details, Projects with a few high cost details, Normal project location, Normal project accessibility

High: Unique or complex projects, Remote project location, Difficult project accessibility, Small projects (less than $100,000), Unknown or unique foundation conditions